AMENDMENTS TO CLAIMS

Claims 1-21 (canceled)

22. (currently amended) A method for designing experiments comprising the steps of:

a) selecting at least a first experiment from an experimental space including a plurality of experiments using a data-driven optimizer;

b) inputting experimentally determined experiment result data of the first experiment to at least one meta layer module;

c) evaluating the experimentally determined experiment result data of the first experiment at the meta layer module, wherein the meta layer module generates evaluation data based on the evaluating of the experimentally determined experiment result data;

d) processing the experimentally determined experiment result data of the first experiment at the optimizer, wherein the processing at the optimizer is influenced by the evaluation data and wherein the optimizer generates experiment design data based on the processing of the experimentally determined experiment result data; and

e) outputting an experiment design based on the experiment design data.

23. (currently amended) The method of claim 22 further comprising the steps of:

f) inputting an optimization goal;

g) selecting at least a second experiment from the experimental space using the optimizer;

h) performing step b) to step d) for experimentally determined experiment result data of the second experiment; and

i) continuing to perform steps g) and h) until the optimization goal is reached.

24. (previously presented) The method of claim 23, wherein at least one of the optimizer and the meta layer module changes the experimental space before the selecting the at least second experiment step.

25. (previously presented) The method of claim 22, wherein the meta layer module contains at least one of a neural network module, a hybrid model module, a rigorous model module and a data mining module.

26. (currently amended) The method of claim 22, wherein the experiment result data is based on experiments from at least one of active ingredient research, materials research, catalysis research, biotechnology and optimization of reaction conditions.

27. (currently amended) The method of claim 22, wherein the evaluating at the meta layer module to generate the evaluation data includes the step of filtering the experiment result data.

28. (currently amended) The method of claim 27, wherein the filtering includes re-evaluating the experiment result data.

29. (currently amended) The method of claim 27, wherein the filtering includes at least one of weighting and pre-selecting the experiment result data.

30. (currently amended) The method of claim 29, wherein the weighting includes at least one of using a weighting parameter and performing at least one duplication of the experiment result data.

31. (previously presented) The method of claim 22, wherein the optimizer includes at least one core module and one module for selecting new test points.

32. (previously presented) The method of a claim 31, wherein the processing at the optimizer is influenced based on processing at the module for selecting the new test points.

33. (previously presented) The method of a claim 32, wherein the processing at the module for selecting the new test points is influenced by at least one of a value exceeding a threshold and a predefined user value.

34. (previously presented) The method of claim 31, wherein the processing at the optimizer is influenced based on processing at the core module.

35. (previously presented) The method of claim 34, wherein processing at the core module is influenced by at least one of a value exceeding a threshold and a predefined user value.

36. (currently amended) A system for designing experiments comprising:

an experimental space module including a plurality of experiments;

an experiment data module including experimentally determined experiment result data for at least one of the experiments in the experimental space module;

a optimizer for selecting at least one first experiment from the experimental space module;

a meta layer module coupled to the optimizer for receiving experimentally determined experiment result data of the first experiment from the experiment data module;

wherein the meta layer module evaluates the experimentally determined experiment result data and generates evaluation data based on the evaluation of the experimentally determined experiment result data;

wherein the optimizer processes the experimentally determined experiment result data of the first experiment and generates experiment design data based on the processing of the experimentally determined experiment result data of the first

experiment, wherein the processing by the optimizer is influenced by the evaluation data; and

wherein the optimizer outputs to the experimental space module an experiment design based on the experiment design data.

37. (previously presented) The system of claim 36, wherein the meta layer module includes at least one of a neural network module, a hybrid model module, a rigorous model module and a data mining module.

38. (currently amended) The system of claim 36, where the meta layer module includes a filtering module for filtering the experiment result data.

39. (currently amended) The system of claim 38, wherein the filtering module is operable to re-evaluate the experiment result data.

40. (currently amended) The system of claim 38, wherein the filtering module is operable to perform at least one of weighting and pre-selecting the experiment result data.

41. (previously presented) The system of claim 36, wherein the optimizer includes at least one core module and a module for selecting new test points.

42. (previously presented) The system of a claim 41, wherein the meta layer module is operable to influence the module for selecting the new test points.

43. (previously presented) The system of claim 41, wherein the meta layer module is operable to influence the core module.

44. (currently amended) The system of claim 36, wherein the system is for achieving an optimization goal, and wherein, until the optimization goal is reached as determined by the optimizer or the meta layer module,

(a)   the optimizer selects at least one second experiment from the experimental space module;

(b)   the meta layer module receives experimentally determined experiment result data of the second experiment from the experiment data module, evaluates the experimentally determined experiment result data of the second experiment and generates evaluation data based on the evaluation of the experimentally determined experiment result data of the second experiment; and

(c)   the optimizer processes the experimentally determined experiment result data of the second experiment and generates experiment design data based on the processing of the experimentally determined experiment result data of the second experiment, wherein the processing by the optimizer is influenced by the evaluation data generated from the experimentally determined experiment result data of the first and second experiments.